

# **DATA QUALITY CHALLENGES FOR A STATE DOT**

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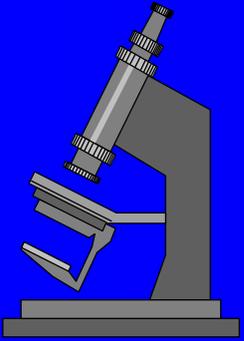
**WisDOT**

**Administrator,**

**Division of Transportation**

**Investment Management**

# NEED FOR DATA



- **Rationalize the Procurement and Expenditure of Funding & Optimize the Use of Funding**

**HPMS Submittal**

**District Justification of Program Needs**

**Maximize Program Benefit**

- **Measure Performance**

**MetaManager - Assessment of Program Impact**



# **COLLECT THE RIGHT DATA**

- **PLANNING**

  - Conduct a Needs-Assessment**

- **DEVELOPMENT**

  - Process Modeling**

  - Data Modeling**

- **STRIVE FOR CONTINUOUS IMPROVEMENT**

  - Question your Methodology**

  - Technology Provides Opportunity**

# QUALITY DATA

**Value of Data = f {Data Integrity}**

# QUALITY DATA

- **TO USE DATA WITH CONFIDENCE**
  - DEFINE & STANDARDIZE DATA**
  - DEFINE DATA TO A DEGREE THAT:**
    - Minimizes Subjectivity**
    - Maximizes Objectivity**

# QUALITY DATA



## ● IMPLEMENT QUALITY CONTROL FOR CONTINUOUS IMPROVEMENT

### -STATE TRUNK NETWORK (STN)

- Audit 10% of Update Segments

  - Inconsistencies identified

  - Facilitate revisions to manual

### -PAVEMENT RATING VAN

- Centralized Evaluation & Rating

  - promotes efficiency, accuracy and repeatability

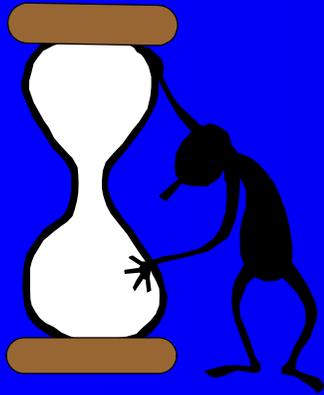
# QUALITY DATA



## ● IMPLEMENT QUALITY CONTROL FOR CONTINUOUS IMPROVEMENT

### -TRAFFIC DATA

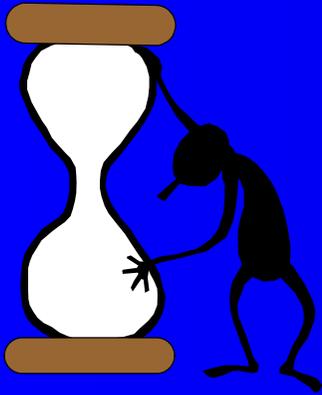
- Daily Verification of Data
- In-House Fabrication of Equipment  
wiring harnesses  
circuit/chip for Y2K
- Develop Specs for Rubber Tubing  
and Adhesives
- Evaluate New Technology



# DATA LIFE

- **DATA COLLECTION IS EXPENSIVE (\$\$)**
- **LEVERAGE DATA AS MUCH AS POSSIBLE BEFORE AN UPDATE**
- **USEFUL LIFE OF DATA CAN BE DERIVED FROM RESPONSIBLE USE**

# DATA LIFE



- **USEFUL LIFE OF DATA CAN BE DERIVED FROM RESPONSIBLE USE**

**Limited Useful Life**

**Prediction of Condition/CIP**

**5 years vs. 40 years**

**Long Useful Life**

**Width, Type, and Location**

# USING DATA

- **The Cost of Collecting Data Often Dissuades data use**
- **Data is Not Typically a High Profile Issue**



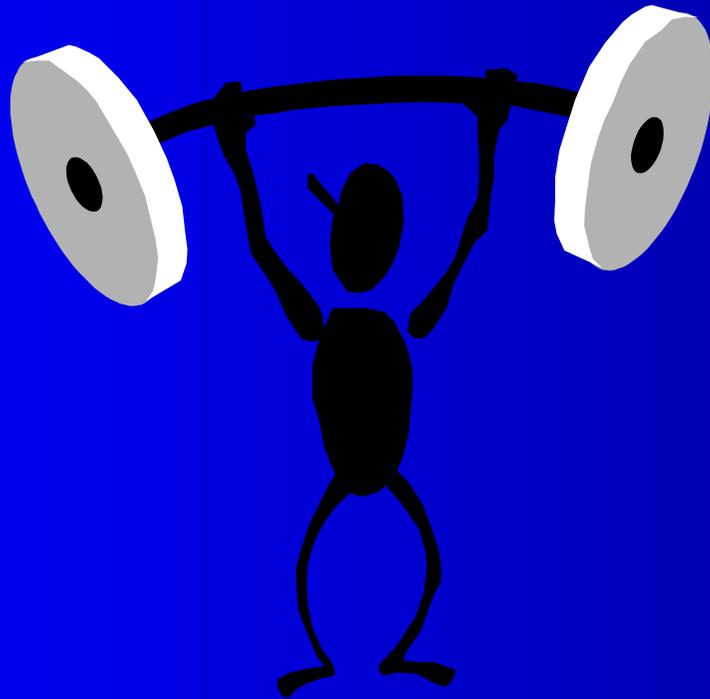
# USING DATA



- **Managers Must Understand and Promote the importance of data**
  - **Optimize Programs/Maximize Benefit**
  - **Measure Performance**

# USING DATA at WisDOT

*“Feel The Power”*



# USING DATA at WisDOT

## Pavement Performance (2000 - 2005)

### Change in Number of Deficient Miles

<b>Backbone System</b>	<b>- 109 miles</b>
<b>Multi-lane Connectors</b>	<b>- 4</b>
<b>2-lane Connectors</b>	<b>- 192</b>
<b>Others</b>	<b>- 481</b>
<b>Total</b>	<b>- 786 miles</b>

# USING DATA at WisDOT

## Safety Performance (2000 - 2005)

- 40% of the roads with safety and pavement concerns are in the program
- 70% of the reconditioning and reconstruct projects in the program are on roads with significant safety problems
- Improvements made to the 2 lane rural roads should reduce crashes by 757 per year

# USING DATA at WisDOT

## Congestion Performance (2000 - 2005)

- Without the program, the miles operating above LOS thresholds would increase by 218 miles, or 23%
- With the program, the miles above LOS thresholds stays steady, increasing by only 12 miles, or 1.3%
- 66% of all capacity improvements are made at LOS D
- Statewide, the program addresses 25% of the miles at LOS D and E and 4% of the miles at LOS F

# USING DATA at WisDOT

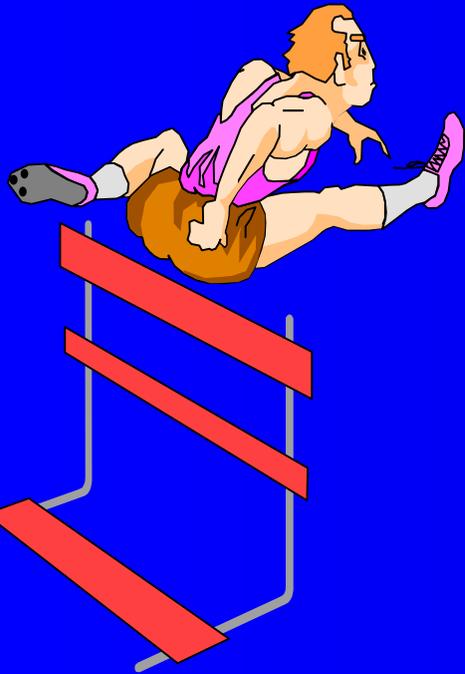
## Bridge Performance (2000 - 2005)

### Change in Number of Deficient Bridges

<b>Backbone System</b>	<b>- 207 bridges</b>
<b>Multi-lane Connectors</b>	<b>- 14</b>
<b>2-lane Connectors</b>	<b>- 37</b>
<b>Others</b>	<b>- 226</b>
<b>Total</b>	<b>- 484 bridges</b>

# BUREAUCRACY

## AN OBSTACLE TO QUALITY DATA



- **DOTs Typically Have a Decentralized Power Structure (Districts)**
- **Absence of Direct Authority or a Powerful Mandate Presents Obstacles**
  - **Accountability for Timeliness**
  - **Accountability for accuracy**
  - **Environment for Data Integration**

# BUREAUCRACY

## AN OBSTACLE TO QUALITY DATA



- DATA INTEGRATION REQUIRES CHANGE TO A STANDARDIZED METHOD FOR:

Defining

Locating

Managing Data

- RESISTANCE TO CHANGE

# BUREAUCRACY

## AN OBSTACLE TO QUALITY DATA



- **UNITS HAVE STRONG REASONS FOR RESISTING CHANGE**

**Units “Own” a Data Item -- The Data Item Meets Their Needs**

**Why Change Business Approach in Light of Ever-Present Resource & Budget Constraints**

- **PAROCHIAL ATTITUDES MAKE DATA INTEGRATION DIFFICULT**
- **EDUCATE & SELL THE BENEFITS**

# FUTURE CHALLENGES

## SHARING RESPONSIBILITY WITH OUTSIDE AGENCIES

### A TREND WITH DOTs ?

- **Magnifies The Problems Listed for Inter-Agency (DOT)**
- **Wisconsin Information System for Local Roads (WISLR)**

**Shared Data Responsibility  
With 1900 Local Units of  
Government**



# MOVING FORWARD

## QUALITY DATA REQUIRES RESPONSIBLE STEWARDSHIP

### SUMMARY OF COMMITMENT:

- **Collect the Right Data**
- **Collect Accurate/Repeatable Data**
  - Clearly Define and Standardize Data
- **Recollect at an Appropriate Interval**
- **Use Data Responsibly**
  - Understand Limitations of Data
- **Increase Efficiency -**
  - Promote Integration Where Practicable
    - improve access to data, reduce redundancies
- **Dedicate Sufficient Resources**

